



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>LeeAnn A. Patrick</b>	<b>Project Number</b> <b>J1817</b>
<b>Project Title</b> <b>Are You Ready to Rumble?</b>	
<b>Objectives/Goals</b> If a huge earthquake were to come right now, would your home be safe? While this question has many parts to its answer, one main part is structural reinforcements. The main objective of this experiment was to find the stronger reinforcement; plywood sheathing or cross-braces.	
<b>Abstract</b> For this experiment I built four 2ft. x 2ft. model houses out of balsa wood. Two of these houses were given cross-brace reinforcements, and the other two were given plywood sheathing. A shake table was then made from particle board, springs, and rods. Each model was positioned on the shake table and weights, representing the upper story of the house, were placed on the model. The earthquake was then simulated by dropping the house, on one of the pieces of particle board, onto the springs from a predetermined height.	
<b>Methods/Materials</b> For this experiment I built four 2ft. x 2ft. model houses out of balsa wood. Two of these houses were given cross-brace reinforcements, and the other two were given plywood sheathing. A shake table was then made from particle board, springs, and rods. Each model was positioned on the shake table and weights, representing the upper story of the house, were placed on the model. The earthquake was then simulated by dropping the house, on one of the pieces of particle board, onto the springs from a predetermined height.	
<b>Results</b> As predicted, plywood sheathing was the stronger reinforcement.	
<b>Conclusions/Discussion</b> After destructive testing, I drew the conclusion that plywood sheathing is much more sturdy, and has all around better performance than cross-bracing. This is because of the distribution of force in the structure. While cross-braces only support the parts of the structure they are attached to, plywood sheathing lends support to the entire structure. This idea of force distribution is what makes plywood sheathing so much stronger than cross-braces.	
<b>Summary Statement</b> Comparing the performance of cross-braces and plywood sheathing against each other in an earthquake.	
<b>Help Received</b> Mother helped take photos and set up board; Father helped build shake table and create scale; My science teacher gave me advice.	